

SolarTech Power Solutions

Inverter ripple voltage



Overview

How DC-link current and voltage ripple affect inverter performance?

Abstract Inverter's performance and operating mode may be negatively affected by inverter input (dc-link) current and voltage ripple. It is a common experience that even theoretically balanced load.

Does voltage ripple affect DC-link capacitance in automotive traction voltage source inverters?

Abstract: The voltage ripple is the predominant dc-link capacitor design parameter in automotive traction voltage source inverters. Therefore, the reduction of the voltage ripple results in the decrease of the dc-link capacitance.

Why is DC-link current ripple important in a five-phase inverter?

Therefore, a thorough analysis of the dc-link current and voltage ripples on the capacitor in a five-phase inverter is essential for both optimal capacitor design and accurate performance evaluation. For the capacitor, high-frequency dc-link current ripple is introduced due to the PWM of the inverter .

Why do inverter switching actions reduce DC-link voltage ripple?

Consequently, the pulsating current flowing from the inverter to the dc source can be effectively reduced . This, in turn, mitigates the dc-link voltage ripple, ensuring a relatively stable dc-link voltage under inverter switching actions .

How DC-link voltage ripple amplitude is calculated?

The dc-link voltage ripple amplitude is calculated in Refs. [23, 24], and the dc-link capacitor design is proposed based on the dc-link voltage switching ripple requirements for five- and seven-phase inverters, respectively. The impact of the number of phases on input current ripple has been analysed in Ref.

What is output voltage ripple?

Output-voltage ripple is the alternating current (AC) component of the direct current (DC) output voltage. It's generated by a combination of factors, including the output capacitor's equivalent series resistance (ESR), the voltage drop across the output capacitance, duty cycle and switching frequency.

Inverter ripple voltage

Contact Us

For catalog requests, pricing, or partnerships, please visit:
<https://zegrzynek.pl>